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April 29, 1932

Report 140

EXAMINATION OF EIGHT BROOK TROUT SENT TO THE INSTITUTE FOR EXAMINATION
(BY CONSERVATION OFFICER GEORGE A. SUMNER)

On April 25, 1932 a package containing eight brook trout, iced, was received. A letter was received, April 26, from Mr. George A. Sumner of Hastings who requested a report on the examination of these fish.

A copy of Mr. Sumner's letter is given here:

"On April 23, I was called to Middleville to investigate the matter of some dead trout found in a spring brook which empties into Thornapple River in that village. I picked up forty-two dead trout on about twelve rods of creek, and am sending you eight of these for analysis.

"I have found in my investigation that there is a drain coming into the creek which is used by seven houses, one of which has a chemical toilet. On Friday night, April 22nd, they flushed this toilet and recharged it.

"In the Creek above where the drain enters, there was a box of minnows apparently all right, which would indicate the trouble came from this toilet. I would like to know if I am correct on this.

"I might say that this has happened twice before, but was not called to my attention."

Several of the trout were examined immediately upon receipt. There was a little ice left in the package, but the fish were soft, so that the ribs pulled loose from the flesh when one was cut open.

The trout were from eight to nine and three quarters inches in size. They were well-proportioned fish of good color.

Several of the fish were carefully cut open, soon after they were received, in order to note possible internal injuries. Four specimens which were cut open showed that the air bladders were collapsed. One was somewhat bloody internally. However the soft condition of the internal organs made it impossible to be sure

that any injuries were present.

The stomachs of these fish contained food such as would be found in a stream that is not heavily polluted. Fresh-water shrimp, immature stages of mayflies, and larvae of caddis flies were among the organisms noted.

The only conclusion that we can reach, from examination of these fish is that they died suddenly. The freshly-taken food in the stomachs and the bright color of the fish would indicate that they were not killed by slow suffocation.

It is possible, but improbable, that the fish were killed by dynamite. However, the collapsed air bladders were probably due to softening of the internal organs. There is little likelihood that dynamite would be used on a small stream, such as the one described.

There is no test, known to us, by which the cause of death could be determined with certainty, by examination of these fish. Circumstances as described in the letter would indicate probability of pollution.

Sewage pollution, in great enough intensity, will take all oxygen from the water and cause suffocation of fish. At the water temperatures occurring during this time of year, there is slight chance that a stream would be without oxygen, even if rather heavily polluted. The sudden nature of the death of the fish and other circumstances make this explanation of death very unlikely.

Chemical poisoning, which may be caused by various toxic substances, often kills fish rather quickly. It is very possible that the flushing of a chemical toilet could quickly poison fish which were near the outlet of the temporary pollution.

Temporary pollution, such as that caused by calcium hydroxide (lime sometimes used for cleaning out toilets) would be extremely difficult to detect. Cases have been known involving killing of large numbers of fish by use of lime in cleaning milk cans, in dairies. By the time a chemist could reach a stream, such

pollutions are usually washed away and temporary pollutions are difficult to detect. Chemical examination of the fish sent would not prove the cause of death.

The chemical used in the toilet in question was not stated in the letter. If a strong lime compound was used, it is quite possible that all fish for a short distance downstream would be killed. Circumstances indicate probability of a happening of this sort but our examinations of these fish do not prove that this is the cause of death.

INSTITUTE FOR FISHERIES RESEARCH

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